Comment pertaining to 11-153: In the Matter of Facilitating the deployment of Text-to-911 and other NG911 applications: Framework for Next Generation 911 deployment

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The 911 Wellness Foundation is grateful for the inclusive nature of this comment process which seeks engagement of all 911 stakeholders in shaping our nation's future NG911 service. Please know that while we express strong concern herein regarding potential health impacts of NG911, we are not opposed to its implementation. Rather, we hope to assure its success by contributing mental health expertise to carefully explore of a chief working question: *what are the possible psychological impacts of the proposed changes in the 911 "human/machine interface" on the personal wellbeing and performance of the dispatcher?* Specifically, we seek to bring attention to the effects that NG911 interfaces may have on the 911 dispatcher's console experience related to risks for acute, traumatic and chronic stress, compassion fatigue, and burnout[1]. We are optimistic that the Commission and other stakeholders can foster prevention of these disorders and associated performance failures if NG911 is strategically designed to maximize compassion *satisfaction*—the intrinsic reward derived from successful caregiving which research has shown to buffer caregivers from debilitating stress disorders[2].

We appreciate the FCC's intention to place greater weight on comment that is evidence-based and references reliable sources in support of expressed opinions (Notice, ¶12). Accordingly, we submit the following research-informed comments for your review:

¶89 of the notice states: *"Should the Commission develop best practices for deploying text-to-911 and other multimedia applications, for example through CSRIC?"*
The Foundation urges the FCC to do so. We recommend formation of a SCRIC Working Group devoted specifically to assessing and minimizing the potential stress impacts of NG911 on the person of the dispatcher and the PSAP through development of Best Practices that address these risks. Please consider the following information as rationale for this proposal:

While the costs of work-related stress are difficult to calculate reliably and figures are often cited to gain partisan advantage, nearly 20 years ago the United Nations cited job-stress as the "20th Century Epidemic" and in 1996 the World Health Organization proclaimed it "A World Wide Epidemic".[3] The National Institute for Occupational Safety and Health, Center for Disease Control and Prevention

[1] For more information about these concepts and for outstanding resources in addressing them within organizations, see stress researcher Beth Hudnall Stamm: ProQOL Manual (2005).
Manualhttp://www.compassionfatigue.org/pages/ProQOLManualOct05.pdf

[2] This finding is well established in studies of the most stressful occupations including the military service and the nursing industry. See *Compassion Satisfaction Buffers Burn Out in Haiti*: NNS100223-05, Valerie A. Kremer, 2/23/2010, and *Countering Compassion Fatigue: A Requisite Nursing Agenda*, Deborah A. Boyle, Online Journal of Issues in Nursing, Vol 16 - 2011No1 Jan 2011.

[3] Source: http://www.stress.org/job.htm. Last visited December 12, 2011

(NIOSH) defines job stress as "… the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker." [4]

Increased job stress is costly in many ways since it can produce multiple physical and mental diseases, and increase performance error thus threatening the success of an organization's most critical missions. And one of the main workplace variables escalating stress is the introduction of significant change in work design and job expectations when insufficient consideration is given to the stress these changes may introduce. In 2002 NIOSH leaders made the potent observation that *"Revolutionary changes in the organization of work have far outpaced our knowledge about the implications of these changes for the quality of working life and for safety and health on the job."*[5] NIOSH thus launched a comprehensive research program, *Work Organization and Stress-Related Disorders*, to *"...eliminate occupational stress, diseases, injuries, and fatalities in the workforce through a focused program of research and prevention addressing work organization risk factors for these outcomes"*[6]

We greatly appreciate the Commission's consideration of establishing of NG911 Best Practice standards and urge the FCC to consider building these standards based in part upon assessment of NG911 organization risk factors for increased stress in accord with the NIOSH model utilizing the insights and guidance available in *The Changing Organization of Work and the Safety and Health of Working People: Knowledge gaps and directions* (April 2002).[7]
Further guidance in developing these Best Practice standards to minimize and manage stress as our PSAPs transition to NG911 can be found in similar groundbreaking work conducted in the United Kingdom. In 1999 The Health and Safety Executive (HSE), the UK governmental agency responsible for assessing occupational safety, determined that the extreme costs of work related stress in United Kingdom necessitated a study addressing this problem. In 2001 they established *Management Standards* to guide the country's systematic prevention efforts. The HSE identified six stressors which it concluded must be always be assessed to effectively reduce workplace stress. These include: Demands, Control, Support, Relationship, Role, and Change. [8]

HSE also established guidance including "Five Steps to Risk Assessment" (INDG163 (rev.1); HSE, 1998), and recommended that this approach be adopted when tackling work-related stress.

> *1: look for the hazards; 2: decide who might be harmed and how; 3: evaluate the risks and decide whether the existing precautions are adequate; 4: record your findings; 5: review your assessment and revise if necessary.* [9]

In our view, the HSE model could greatly contribute to the assessment and design of the proposed NG911 human/machine interface adding great value in the Commission's cost benefit analysis, establishment of best practice standards, and in defining ongoing maintenance criteria related to stress.

Specific concerns regarding NG911 and the introduction of new stressors. We suggest that implementation of NG911 text and multimedia capabilities could actually lessen stress in the PSAP by enriching resources and information available to the dispatcher, thus fueling mastery and compassion satisfaction related to improved call outcomes. Yet NG911 will likely also introduce significant new stress

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[4] http://www.cdc.gov/niosh/docs/99-101/ Last visited December 12, 2011

[5] *The Changing Organization of Work and the Safety and Health of Working People: Knowledge gaps and directions.* DHHS (NIOSH) Publication No. 2002–116. April 2002

[6] http://www.cdc.gov/niosh/programs/workorg/

[7] http://www.cdc.gov/niosh/docs/2002-116/

[8] Colin J. Mackay, Rosanna Cousins, Peter J. Kelly, Steve Lee, and Ron H. McCaig. *'Management Standards' and work related stress in the UK: Policy background and science.* Work & Stress, April-June 2004, Vol. 18, NO. 2, 91-112. Available at http://www.hse.gov.uk/stress/techpart1.pdf. Last visited December 12, 2011.

[9] Ibid

to the dispatcher's experience related specifically to the six HSE stressors unless careful and systematic assessment and management of these factors is assured by best practice standards informed by the NIOSH model above and the HSE Management Standards. We therefore urge the FCC to adopt Best Practice guidance for implementation of NG911 addressing the following NPRM issues:

1. ***NPRM ¶33 states: "what role, if any, should the Commission play in facilitating the short-term deployment of text-to-911 using existing infrastructure?"*** The Foundation believes careful attention must be given to the potential for increased psychological stress related to dispatcher/call-taking via text. We ask that the Commission utilize its leadership role in expediting NG911 to boost prioritization of efforts to *evaluate stress related to the logistics and interpersonal dynamics involved in dispatching text calls*. We ask the FCC to urge all stakeholders to join in this discussion. Please consider the following:

   While real-time video poses both the benefit and risk of highly enriched data to the PSAP, texting represents a risk for significantly limited information, in terms of: 1) the rate at which crucial life-saving information can be received, 2) the lack of essential elements of verbal exchange that accompany traditional verbal communication (voice tone/inflection expression of affect, intention, etc.). Cooperation of callers who are highly distraught (or mentally ill) in providing vital life-saving information often requires them to gain stability and a sense of emotional safety. Their ability to achieve this improved mental state can require the 911 telecommunicator to establish and maintain a genuine human connection. Callers register this connection by assessing the quality and content of the dispatcher's responses in terms of empathy conveyed primarily through voice.

   For example, callers at high risk of suicide struggling with significant ambivalence in choosing death versus life may only provide their addresses and pledge cooperation when they have achieved trust in the telecommunicator to assist them non-judgmentally—a condition often only achieved through caring personal exchange with the dispatcher. Thus, with the exception of the caller who can or will only communicate via texting, the demand for the 911 professional to provide optimal suicide intervention with a texting caller escalates risk in 911 emergency response. The introduction of texting without thorough preparation to mitigate this risk compounds an existing and unaddressed problem facing our nation's 911 telecommunicators in the management of suicidal callers: there is currently no industry standard defining and providing for essential training in call-management with mentally ill and suicidal callers. The vast majority of 911 telecommunicators have therefore not received adequate training in this area. Adding the complication of managing these calls via the medium of texting introduces even greater risk of emergency response failure.[10]
   3) While the National Emergency Number Association (NENA) and other stakeholders are actively workers to reduce cryptic/esoteric language barriers associated with texting, the risk of the dispatcher misunderstanding and misinterpreting text messages poses another complication which can lead to response errors. And as sense of call-management mastery decreases, the dispatcher's anxiety can be expected to elevate further impairing concentration and attention thus creating a cycle in which more cognitive errors may occur. Thus we can predict increased stress for the dispatcher related to all three of these aspects as heightened *demand* combines with decreased *control*.

   Recommendation: as the Commission facilitates the short-term deployment of text-to-911 using existing infrastructure, the Foundation urges the FCC to form a CSRIC working group (subgroup to the earlier proposed working group?) engaging frontline dispatchers with other

[10] James W. Marshall, 2011. *Building LifeBridges to Suicidal Callers.* 911 Training Institute

911 stakeholders and subject matter experts to conduct systematic assessment of the potential risks posed by interface with texting and other NG911 technologies utilizing the NIOSH model and the HSE five step approach. Further, we recommend the this working group coordinate its efforts with a CSIRC or NENA Working Group on NG911 Training Development tasked to assure that dispatchers receive skills training in call management with mentally ill and suicidal callers, with special emphasis on designing approaches to intervention that accommodate the limitations that texting places on forming human alliance and acquisition of scene information crucial to the safety of field responders.

2. **The second question posed in NPRM ¶33 was *"what role, if any, should the Commission play in facilitating the long-term deployment of non-voice emergency messaging services, including IP-based messaging and RTT, as well as multimedia applications that support delivery of voice, text, photos, video, and other data?***

The Foundation is concerned that NG911 may produce *intensified dispatcher exposure to traumatic events*. Please consider this important background information:

The Diagnostic and Statistical Manual of the American Psychiatric Association, Fourth Edition, TR (DSM-IV, TR) defines a traumatic event as a stressor in which:

> *The person has been exposed to a traumatic event in which both of the following have been present:*
>
> *1. The person has experienced, witnessed, or been confronted with an event or events that involve actual or threatened death or serious injury, or a threat to the physical integrity of oneself or others.*
>
> *2. The person's response involved intense fear, helplessness, or horror. Note: in children, it may be expressed instead by disorganized or agitated behavior.*[11]

The common implicit assumption in the history of the 911 industry among members of the law enforcement/emergency response community has been that dispatchers are not *physically* on scene (like police, fire, and EMS workers) and therefore are not exposed to psychologically traumatic events. However, public health researcher Roberta Troxell (2008) found that 16.3% of 492 Illinois 911 dispatchers acknowledged symptoms consistent with Secondary Traumatic Stress Disorder (STSD)[12] and both criteria 1 and 2 above at some point in their careers. She concluded: *"…in contrast to popular belief, the data confirm that not only can those in helping*

[11] http://www.ptsd.va.gov/professional/pages/dsm-iv-tr-ptsd.asp, accessed December 12, 2011

[12] STSD is not an official diagnosis of the American Psychiatric Association (APA). It is a construct with symptoms identical to Post Traumatic Stress Disorder (PTSD) but intended to emphasize a difference in perspective. Specifically that in STSD the person, such as a 911 dispatcher, does not *directly* experience risk of serious injury or death to self on the job (per APA definition of a traumatic event, criterion 1 as cited above) since he is not physically on scene. Yet, by contact with the officer or citizen in peril, this dispatcher does experience "…risk of serious injury or death to *others*." Thus, while he may qualify for the diagnosis of PTSD as defined below, the diagnosis of STSD may be used to emphasize that the dispatcher's traumatization occurred by exposure to the officer's or citizen's risk or death. Support for this explanation is found in C. R. Figley (Ed.), *Compassion Fatigue: Coping with secondary traumatic stress disorder in those who treat the traumatized,* p. 8. New York: Brunner-Routledge, 1995. PTSD is an official diagnosis of the APA which is given when a person meets criteria 1 and 2 above and has been exposed to a traumatic event (as defined above), experiences several symptoms from each of three symptom clusters: intrusive recollections, avoidant/numbing symptoms, hyper-arousal symptoms; The above symptoms occur for more than one month (following exposure to the event); The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning. (Summarized from the DSM-IV, TR. See http://www.ptsd.va.gov/professional/pages/dsm-iv-tr-ptsd.asp, for more detailed description.)

*roles be affected by traumatic information whether physically **on the scene or not**, but also that they can be **affected to the same degree**. Physical distance does not protect them."*[13]

This subjective sense of helplessness combines with the verbal stimuli from the caller to boost risk of traumatization. Troxell reveals the nature of these stimuli that dispatchers find most distressing:

> *Because detailed information about the emotions of the callers and background sounds and voices were included in the descriptions of their index events, it was logical to conclude that these added significantly to the stressfulness of the calls. For example, the caller was "screaming," "hysterical," "crying and begging for help," "shrieking," and "very upset"… They were also described as "so afraid," "traumatized," "very frightened," and "very distraught"… As one telecommunicator put it, "The fear in her voice was the most horrific thing." Another related how he heard in the background a "heinous, horrifying scream" and "I had chills running down my body and my hands were shaking."*[14]

The addition of real-time video exposure in such cases may increase the likelihood that dispatchers will experience the triad of feelings: fear, horror, and helplessness, i.e., increased risk of traumatic exposure (per DSM-IV, TR criteria).
To prepare 911 dispatchers to effectively manage the most distressing calls accompanied by real time video we must assure funding to provide training, traumatic stress therapy, and critical incidence stress management specifically targeting the above *call conditions* discovered by Troxell which elicit intense fear, horror, and or helplessness. In addition, our 911 professionals must be provided these services to prepare for, and achieve resolution from, traumatic exposures related to those specific *call types* (evidenced by activation of this feelings-triad). These call types are listed here[15] accompanied by the % of 496 dispatchers who so identified with such calls at least once in their careers:

CALL TYPE	PERCENTAGE
Calls involving children with severe injuries	51.4
Death of a child	49.5
Officer/firefighter/EMT injured	48.8
Suicidal caller	46.8
Calls involving your family/friends	39.3
Traffic accidents with fatalities	38.6
Sexual assault of a child	35.6
Domestics	32.1
Natural disasters/severe weather	31.2
Shots fired	30.0
Pursuits	28.8
Structure fire	26.1
Homicide	25.3
Barricaded subject (police stand-off with suspect)	22.6
Other highly disturbing calls	17.8
Armed robbery	17.6
Hostage situation	16.4
Officer shot	14.6

[13] Roberta Mary Troxell, 2008. *Indirect Exposure to the Trauma of Others: The Experience of 911 Telecommunicators.* University of Illinois at Chicago.
[14] Troxell, 2008, p. 123
[15] Ibid, p. 111

Riots/mob action	13.1
Line of duty death	11.3
Plane crash	7.8

We should emphasize that while the percentage of dispatchers in the study exposed to traumatic incidents decreases from top to bottom of this table, the severity of impact can be greater with a single exposure to one type of experience than many exposures to another experience, depending on several factors: severity of the event; the personality, personal history, and current psychological status of the dispatcher; the presence or absence of buffers and supports in the workplace (i.e. management of the HSE stress factors discussed earlier); home life of the dispatcher; and the degree to which the telecommunicator has experienced mandatory/forced overtime. Thus with the anticipated increase in emotional intensity that visual exposure to such events may produce with NG911's real-time video capability, stakeholders must join the FCC in designing preventive and intervention resources for dispatchers that recognize Troxell's findings here.

Also pertaining to ¶33, the Foundation is concerned with the risk of increased dispatcher stress per increased multitasking in the NG911 PSAP: dispatchers are expected to "multitask" at very high levels in their work. Thus while they may benefit from visual observation of the caller and scene, this implies the expectation that the dispatcher can and will sustain attention to real-time video imagery amidst the many other visually demanding tasks he is simultaneously performing. Thus, in practice the dispatcher may find it quite difficult to maintain uninterrupted focus on this video feed though this may be expected of him. Stakeholders must be engaged in answering two related questions: *What expectations (role in use of video information) and related emotional labor will be placed on the dispatcher? What shared legal liability will the PSAP and the dispatcher assume if video records are summoned to court?* All these are aspects of potential stress related to the stressors of demand, change, and control.

Each additional media stream to the 911 dispatcher's console increases task complexity and multitasking. Thus, in assessing benefits of using this additional NG911 technology we must also assess the predictable increases in mental demand places upon the dispatcher who must manage all the pertinent human/machine interfaces in real time interactions with data and people. Just as schematics have been created to map the interface between multiple NG911 systems to carefully conceptualize how NG911's technological components will be orchestrated, we must also assess and diagram the varieties of simultaneous mental and interpersonal tasks required in real time of the 911 telecommunicators who must dispatch utilizing NG911 technologies for scenarios such as those described above and in the NPRM ¶23. That is to say that NG911 capability has, thus far in the Notice been defined as that which is possible to achieve in purely with regard to technology. Yet overall NG911 success will depend on realistic, scientifically grounded appraisal of the telecommunicators' *human* capabilities to manage the increasingly complex multitasking required at the NG911 console. We must consult and defer to current cognitive science and evidence-based standards on workplace stress to carefully identify these human limitations as we shape our expectations for PSAP implementation of NG911 technologies.

Another critical stress factor of the 911 dispatch experience that may be elevated with implementation of the NG911 capabilities proposed in the NPRM is *emotional labor* (EL). EL involves the degree of demand placed on a worker to manage emotionally intense encounters—balancing the emotionality of others while regulating their own emotions. Troxell (2008) also assessed EL as another factor contributing to traumatic stress, compassion fatigue, and burnout. The dispatchers in her study identified with a high level of Emotional Labor.

All things that are technologically possible for NG911 may not be wise to expedite without great care when we can anticipate risk of significant human tolls related to increased staff burnout, critical errors in performance related to mental fatigue and stress. Troxell (2008) cited Pines and Aaronson in her definition of burnout as "Physical, emotional, and mental exhaustion caused by long term involvement in mentally demanding situations". She reported that 14.7% of 491 dispatchers in her study were at risk for burnout.[16] And explained factors related to this finding, stating:

> *Given the complex nature of their work, the finding of 81 % working in centers with mandatory and/or forced overtime, and the large endorsements of administrative, management, and coworker issues as sources of stress, it is not surprising that burnout was identified as a cause of lowered retention rates by Project RETAINS (Taylor, 2005). The present study found that compassion satisfaction was also negatively associated with burnout.*[17]

Given this high rate of dispatcher burnout in the traditional legacy 911 PSAP, the current prevalence of PSAP retention problems[18], and the likelihood of increased stress related to the myriad changes dispatchers will experience adapting to NG911, it will be essential to systematically design the NG911 PSAP to address the concerns highlighted by Troxell's findings. She also cited findings from NIOSH (2004) regarding the role of stress as a leading cause for lost work days:

> *…anxiety, stress, and neurotic disorders surpassed all nonfatal injuries and illnesses. In fact, 42.1% of these cases involved more than thirty days away from work, with the median number of twenty-five days.*[19]

These challenges may, per Troxell's findings, increase unless implementation of NG911 is designed with these insights in mind to curb the already high rate of mandatory and forced overtime in our PSAPs. Recruitment, retention, and stress-related losses in productivity may increase in the NG911 PSAP as stress increases.

A major factor affecting retention with implementation of NG911 may be higher degrees of anxiety and distress among older dispatchers about NG911 changes, since a high percentage of this population are likely "digital immigrants" less "at home" with emerging technologies versus "digital natives" (those raised in the digital era).[20] In Troxell's study, only 20.4% of the 483 participants were between 20 and 29 years old. Median age was 39.[21] We must explore what factor age may plan in adaptability to NG911. The Foundation knows of no formal studies

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[16] Troxell, 2008, p. 137

[17] Ibid, p. 182

[18] Project RETAINS (an APCO-International initiative) research identified the average turnover rate for all 911 centers to be 17 percent and 15 percent in large centers. These rates of turnover exceed those of the nursing industry and education. Source: Wanda McCarley, The key to satisfied employees. http://www.apco911.org/new/commcenter911/downloads/Project_RETAINS-The_Key_to_Satisfied_Employees.pdf. Last visited 12/12/11.

[19] Troxell, 2008, p. 4

[20] *Born Digital: Understanding the first generation of digital natives*. John Palfrey and Urs Gasser, 2008. This book is "an initiative of the Digital Natives project, an interdisciplinary collaboration of the Berkman Center for Internet & Society at Harvard University and the Research Center for Information Law at the University of St. Gallen." (See Source for more information: http://www.borndigitalbook.com/)

[21] Ibid, p. 84

conducted to assess frontline dispatchers' degree of comfort versus distress when presented with a summary of NG911 as proposed in the NPRM. Nor can we know with certainty if the age of the telecommunicator will be a determinant in degree of stress, adaptability, and success a dispatcher experience operating the NG911 console.
However, this author has presented a brief summary of the capabilities planned for NG911 to over 500 dispatchers throughout the United States and observed a clear pattern of significantly greater distress and resistance upon consideration of managing NG911 calls involving texting and real time video among our dispatchers with greater than 10 years of PSAP experience. We recommend that the FCC make special effort to engage veteran front line dispatchers in discussion of NG911 and that the ICO conduct a formal study addressing this special concern for veteran telecommunicator openness and adaptability to NG911. Such proactive measures, if followed by strategic preparation efforts targeting our digital immigrants could prevent harm to, and the loss of our current generation of frontline and supervisory leaders upon whom we must depend for the success of NG911, especially as we expedite its implementation. PSAPs will need to be afforded flexibility in staffing assignments to assure that duties in the NG911 PSAP best fit the abilities of its workers.

The National Institute for Occupational Safety and Health (NIOSH) has set a precedent for pursuit of protective efforts in behalf of workers exposed to physically hazardous work materials and conditions which, given the NIOSH finding above, should also be applied to mentally hazardous conditions[22]. Through the years, NIOSH has partnered with industry leaders to create model stress reduction programs that have produced dramatic results including improved personal health and work performance of workers. Similarly, the Foundation hopes that our comments will help the FCC and the Implementation Coordination Office (ICO) to lead all 911 stakeholders in identifying the psychological equivalents to "HAZMAT" amidst the many positive features of the proposed NG911 PSAP. Well-developed partnerships already exist between these government entities, NENA, and vendors which can facilitate thorough examination of the potential psychological implications (positive and negative) associated with the NG911 PSAP as proposed in this NPRM, leading to best practice for NG911 stress management. NENA has paved the way for such an initiative by establishment of its Work Group on 911 Stress and development of a proposed NENA Standard on Acute, Traumatic and Chronic Stress Management (currently in internal review process). NENA has recognized that prior to and apart from NG911, 911 stress is (as Troxell has established) a serious under addressed problem that must be proactively addressed.

Thus, the Foundation would advise the FCC, in accord with NPRM ¶89 to define NG911 best practice in management of stress by continuing this discussion of the chief working question addressed herein which has thus far omitted from official FCC discussion related to NG911 cost/benefit analysis: *what are the possible psychological impacts of the proposed changes in the 911 "human/machine interface" on the personal wellbeing and performance of the dispatcher?* In our comments we have sought to offer a research-informed response to this question while shedding some initial light on its correlates, which we offer as a framework for further investigation:

[22] Toward a Typology of Dynamic and Hazardous Work Environments
NIOSHTIC-2 No. 20021061 (December, 2001)

- *Can we predict, based on current science, that changes in the dispatcher interface with "callers" related to NG911 emerging technologies will increase dispatcher stress?*
- *If so, what specific aspects of the NG911 dispatch experience can we predict will activate greater stress?*
- *What impacts could increases in dispatch stress related to NG911 implementation as proposed in the NPRM have upon dispatcher performance in real time?*
- *What features of the NG911 interface proposed in the Notice or that could be designed, might decrease dispatcher stress compared to the current legacy 911 console experience? (For example, would dispatcher access to richer information from the caller via real time video counter feelings of helplessness by boosting the dispatcher's scene awareness? How can compassion satisfaction be boosted in the NG911 PSAP?)*

Funding for NG911 must include provisions for research to answer these questions and other crucial questions. Troxell's research cited here represents the only major study to date that has sought to measure the work-related stress of 911 telecommunicators, and she cites limitations to her research scope and design that call for replication to substantiate her findings. Also, Troxell's study did not attempt to address the questions we have posed regarding NG911. More research is needed to establish with greater confidence the impacts of stress in our current legacy 911 PSAPs to enable a more reliable scientific foundation for research on the potential (and upon implementation, actual) impacts of the changes dispatchers will face in the NG911 PSAP. (Not only has research been lacking related to 911 stress, so also has training on stress management.)

If these proposed research efforts are conducted and affirm Troxell's findings as well as the significant additional risks the Foundation predicts will be inherent to the NG911, funding from NG911 implementation legislation should be allocated for primary, secondary and tertiary prevention of compassion fatigue, STSD, and stress-related illnesses: these measures include preventive education and training to equip dispatchers to manage these specific stressors; staff participation in critical incidence stress management; employee assistance programs supporting psychotherapy; and, ongoing assessment of PSAP stress targeting the specific aspects of the NG911 experience that will increase stress and fostering those that will buffer its effects. More specific recommendations related to these stages of prevention were also recommended by Troxell (2008)[23] and reinforce our proposal.

The NPRM's proposed early roll-out of text capabilities followed by multimedia and other capabilities) will be premature if the questions above are not addressed with the input (actively recruited) of our nation's frontline dispatchers joined my mental health subject matter experts and other 911 stakeholders. We must override historical ignorance about the impacts of stress on our 911 telecommunicators and be sure that NG911 technology is developed with their active and expert input. To otherwise thrust it upon them after NG911 is already shaped will impair "buy-in" and cooperation and, lacking the contribution of their insight, would hinder optimal configuration of the NG911 human/machine interface, PSAP and greater NG911 architecture.

[23] Ibid, pp. 198-199

The third invitation for comment in NPRM ¶33 states ***"…as the transition to NG911 occurs, what efforts are needed to educate the public and minimize consumer confusion, and what role, if any, should the Commission play in such efforts?"***

The foundation urges the FCC to assure that funding for NG911 provides for *comprehensive public education* to foster realistic expectations for 911 response in accord with these the Foundations comments related to stress to influence the public's 911-use behaviors to respect rather than exacerbate dispatcher stress. Specifically, clear guidance should be provided to citizens regarding limitations of different media for effective use of 911 and in relation to various call types, and addressing how to best convey crucial importance via various NG911 media to support effective communication of vital information. Educational NG911 campaigns should afford the public a sobering and informative "peek inside" the PSAP to gain knowledge about, and empathy and respect for the demands placed of 911 professionals.

Concluding comments and final recommendation: Beyond attending to NG911-related dispatcher stress to assure the technical success of NG911, current knowledge about stress, the research presented herein, and the expert guidance set forth by NIOSH and HSE all support an ethical mandate to protect the health of our nation's dispatchers by systematic exploration and accommodation of these concerns put forth in the Foundation's comments.

Therefore in accord with the duties conferred upon the *Implementation Coordination Office (ICO)* jointly administered by The Department of Commerce's National Telecommunications and Information Administration (NTIA) and the Department of Transportation's (DOT) National Highway Traffic Safety Administration (NHTSA) (NPRM ¶15), the Foundation recommends that the ICO be charged with the primary responsibility for implementing the recommendations proposed in our comments and any related recommendations that may result from the proposed CSRIC working groups pertaining to the prevention of compassion fatigue, traumatic stress disorders, burnout, and stress-related illnesses among our nation's dispatchers who expected to serve in the NG911 PSAP . Involvement of NENA, the Association of Public-Safety Communication Officials-International (APCO), and the National Academies of Emergency Dispatch (NAED) among other stakeholders is highly recommended.

Thank you for considering these comments.